

HOW TO IMPLEMENT LIVE SUBTITLING ON TV

*Guidelines for making
television broadcasts accessible*



Interlingual Live
Subtitling for Access

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<http://ka2-ilsa.webs.uvigo.es/guidelines>



INTRODUCTION

Live television programmes can be made accessible thanks to live subtitling. Subtitling caters for the needs of different viewers who temporarily or permanently do not have access to the original audio, such as people who are deaf or hard of hearing, and viewers who cannot understand the language of the programme.

This document is addressed to TV broadcasters, accessibility managers and anyone who wishes to make their TV broadcasts accessible.

Both public and commercial broadcasters in the EU are obliged to attain certain goals regarding accessibility. Every broadcaster should be aware of the legal framework in their country or region in order to fulfill their obligations.

Subtitling has been around for decades now, but live subtitling is still considered a novelty, even though it has been used since the turn of the 21st century. Live subtitling refers to subtitles which are presented simultaneously with the content that goes live on air or is streamed online. These guidelines focus on how intralingual (within the same language) and interlingual (from one language to another) live subtitles are produced and what specific requirements are needed.

Nowadays, live subtitles are usually produced by means of respeaking, whereby a person known as a respeaker repeats or paraphrases what is being said, also dictating punctuation marks to speech recognition software, which turns the respeaker's words into on-screen subtitles. Other methods like stenotype and velotype are also commonly used, but they require live subtitlers to engage in long periods of training and these methods work in a restricted set of languages. Respeaking cannot be compared to translating, subtitling or interpreting alone. What a respeaker does is close to what an interpreter does, but there are major differences. A respeaker reformulates (intralingual) or translates (interlingual) messages and then edits and airs the subtitles. Interpreting techniques can be of immeasurable value to novice respokers, but respeaking requires additional skills, like being able to estimate whether the uttered phrase will fit into the required length of a subtitle or mastering speech recognition and subtitling software at the same time. It takes a special kind of subtitler to master all the skills required and cope with the resulting amount of stress.

DEFINITIONS

ANTENNA DELAY – an additional delay introduced by the broadcaster before broadcasting the TV signal. Broadcasters introduce antenna delay to minimize the latency of live subtitles or to allow for censoring strong language.

AS-LIVE BROADCAST – a programme that has an additional delay (known as antenna delay) between the moment the audio and video are being recorded and the moment the TV signal is broadcast. Viewers are usually not aware of whether they are watching a live or as-live broadcast.

INTERLINGUAL RESPEAKING – see 'Transpeaking'.

INTRALINGUAL RESPEAKING – see 'Respeaking'.

LIVE BROADCAST – a program that is broadcast as it is being recorded.

LIVE SUBTITLES – live titles displayed on a screen underneath or as part of the image.

RESPEAKING – a method of creating live subtitles using speech recognition technology, whereby a person known as a respeaker repeats what is being said, dictating also punctuation marks (respeaking is also known as voice writing).

SEMI-LIVE SUBTITLES – subtitles provided for programmes that are typically broadcast live but are scripted, such as news bulletins where presenters are reading text from a prompter and some parts of the show are pre-recorded. Since the scripts are available beforehand, the subtitlers prepare them before the broadcast and release them in real time with little or no latency.

SPOTTING – the process of synchronizing subtitles with the audio, also known as timing or cueing. Spotting involves assigning an in-cue (when the subtitle starts to be displayed) and out-cue (when the subtitle stops to be displayed).

SUBTITLE LATENCY – the time between the moment something has been said and the actual moment the subtitle appears on the screen.

TRANSPEAKING – a method of creating interlingual live titles using speech recognition technology, whereby a person known as an interlingual respeaker (or transpeaker) translates what is being said, dictating also punctuation marks.

USERS

Live subtitling benefits many different types of viewers, in particular:

- **viewers with hearing loss;**
- other **people who may experience difficulties** accessing TV content, such as people with autistic spectrum disorders or people with dyslexia;
- **viewers who do not know the language** of the programme well enough and can benefit from interlingual (different language) or intralingual (same language) subtitles delivered to them in real time;
- **hearing viewers** who might want or need to watch audiovisual content in noisy environments or in a context where they cannot watch the programme with the sound on, for instance at train stations, in pubs or when travelling.

BENEFITS

- Live subtitles increase overall accessibility of TV content, especially for deaf and hard-of-hearing viewers;
- Live subtitling can attract more viewers and increase viewership figures;
- Viewers can follow TV content without turning on the sound;
- Live subtitling helps broadcasters meet EU and national regulations regarding media accessibility;
- Live subtitles can be used later as a transcript for search purposes.

WORKFLOWS

When respeaking for television, there are several modes of operation, but by and large a distinction can be made between **live subtitling** and **semi-live subtitling**.

Semi-live subtitling is provided for programmes that are typically broadcast live but are scripted, such as news bulletins, where presenters are reading text from a prompter and some parts of the show are pre-recorded. Since the scripts are available beforehand, the subtitlers prepare them before the broadcast and release them in real time with little or no latency (Fig. 1).

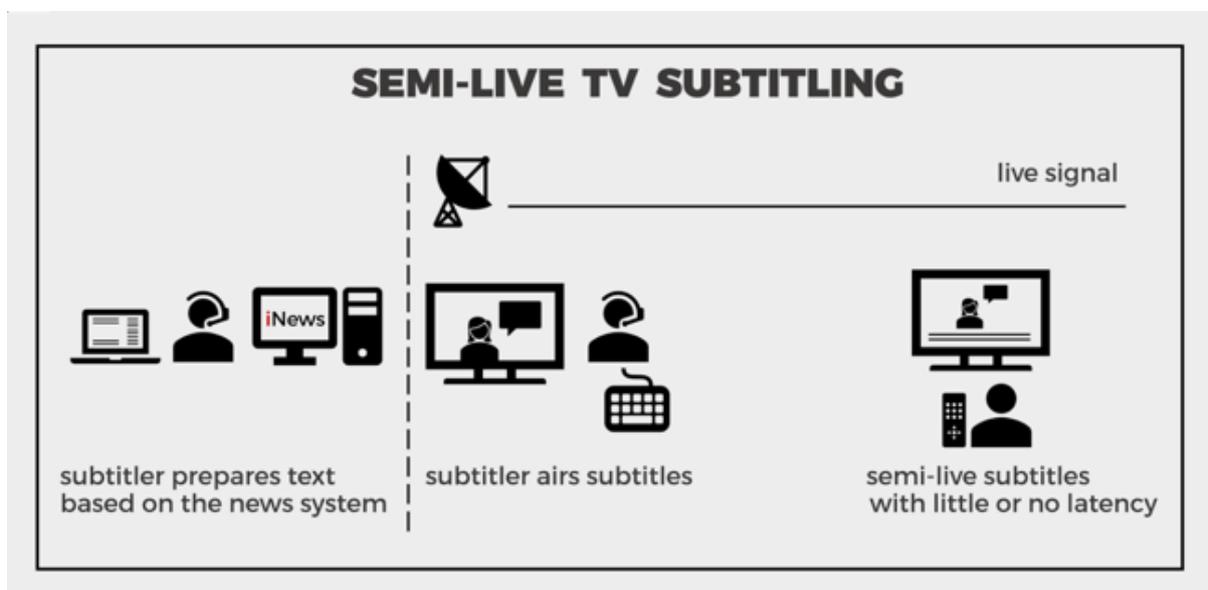


Figure 1. Model of semi-live TV subtitling

Live subtitling is produced in real time, typically for unscripted live programmes (Fig. 2). Such programmes are completely live - they are broadcast as they are being recorded. Two roles are usually needed: a respeaker, who listens to the spoken message and respeaks it, and an editor, who corrects the produced output and then broadcasts the subtitles live.

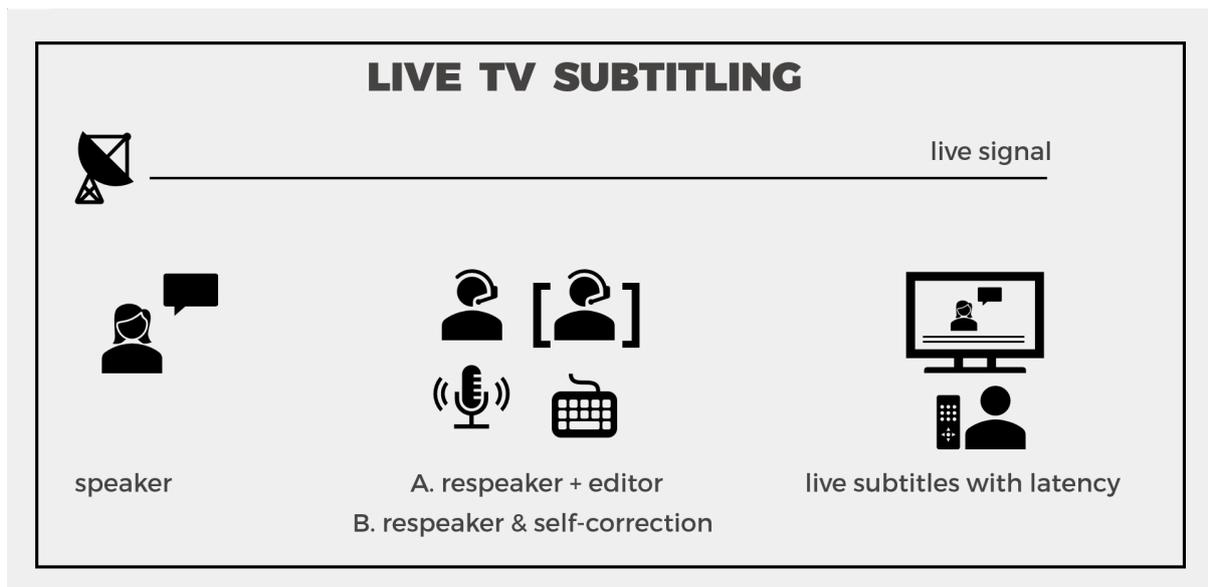


Figure 2. Model of live TV subtitling

Generally, both respokers and editors need to be isolated from distractions. As editors make their corrections based on the content of the live feed as well as the output of the respokers, they need to be able to hear what respokers say. Thus, they need to be in the same room or have an audio connection. Sometimes a third person, a broadcaster, is added to the equation. A broadcaster is responsible for airing the subtitles and is the last filter if the editor misses any errors.

Depending on the programme and the language, it might be possible for the task to be handled by one person only: the respoker who listens to the spoken message, respokes it, corrects the produced output and then broadcasts the subtitles live. This may work for programmes characterized by longer pauses and less dense information and in languages where speech recognition produces very few errors. For more details on respoking with self-correction, check the “Live Correction” section.

Live and semi-live subtitling are often used alongside in the same TV programme as live TV shows often combine scripted and unscripted parts. For instance, in an otherwise scripted news bulletin the news presenter can also hold an unscripted conversation with a correspondent.

SUBTITLE LATENCY

If the respeakers receive the live signal at the same time the signal is broadcast, live subtitles will be displayed on the screen with some latency, which is needed for the respeaker to listen and respeak the speaker's words and for the editor to correct and air the subtitles (Fig. 3).

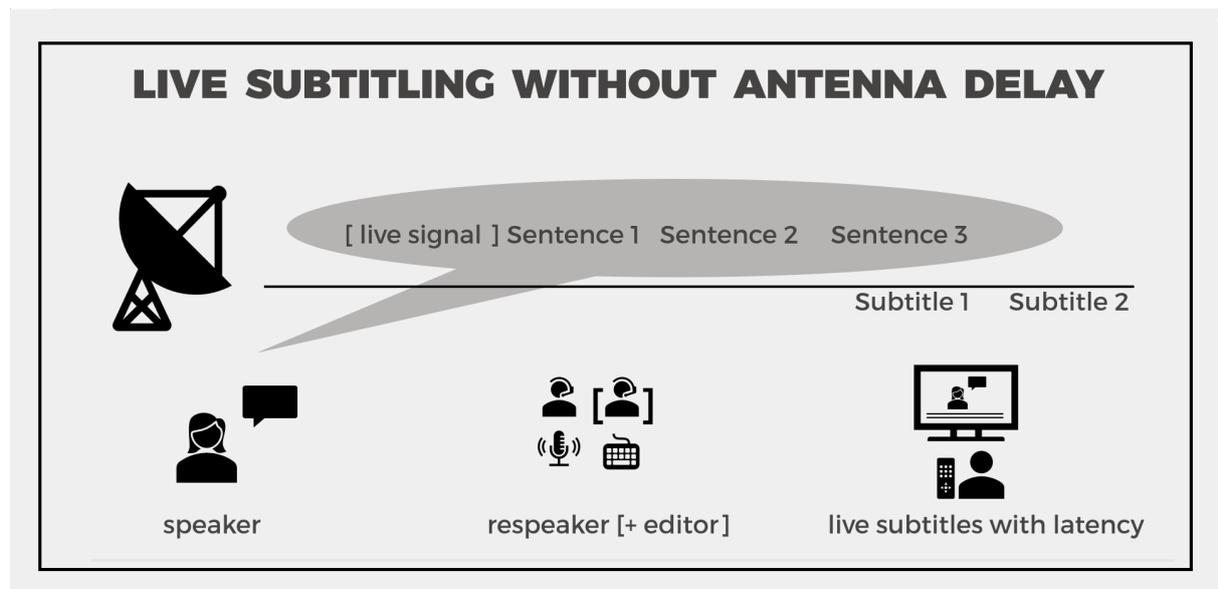


Figure 3. Model of live TV subtitling without antenna delay

To minimize latency, some broadcasters delay their signal. This is known as antenna delay. For as-live programmes (those that have antenna delay between the moment the programme is being recorded and the moment in which it is broadcast for the viewers), live subtitles are produced differently (Fig. 4). Here, the respeaker and the editor have more time at their disposal, as they can use the antenna delay to synchronise the subtitles with the programme (which results in subtitles with no latency), correct potential errors (subtitles with few or no errors) and include as verbatim a content as possible (subtitles with little editing). The bigger the antenna delay, the better the quality of the live subtitles provided for the viewers, who are usually not aware that they are watching an as-live broadcast.

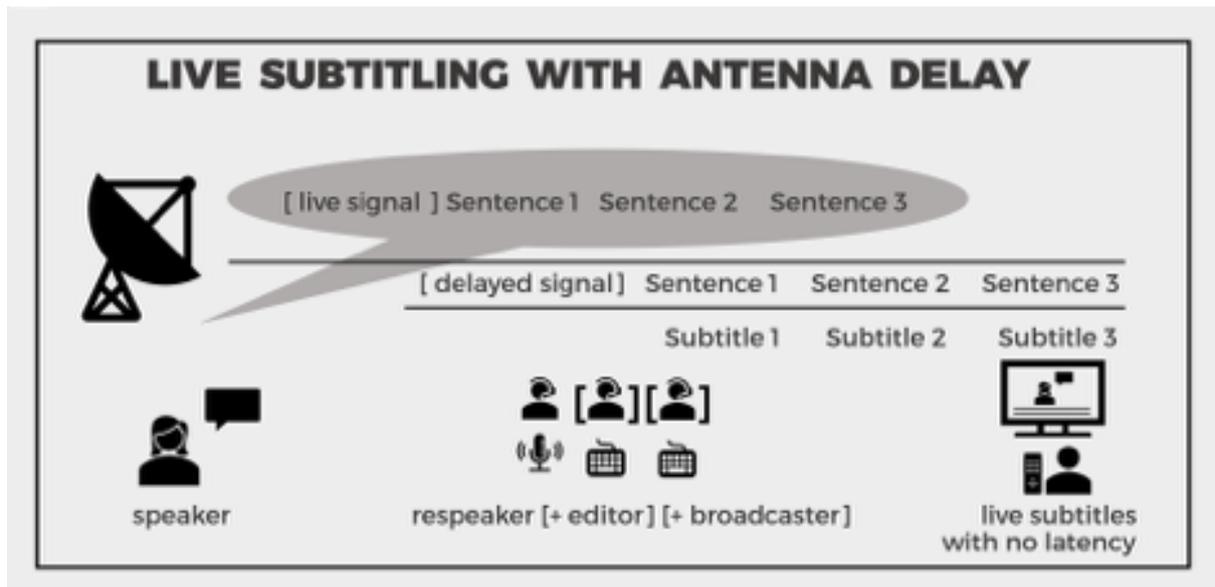


Figure 4. Model of live TV subtitling with antenna delay

Interlingual live subtitling is the most challenging form of subtitling, as it combines the complexity involved in live subtitling with the challenges posed by live translation or simultaneous interpreting (Fig. 5). Interlingual live subtitling may be produced by:

- an interpreter, who translates language A into language B, and a respeaker, who respokes the interpreter's spoken input into written subtitles displayed on screen. An editor may be used to correct the respeaker's subtitles.
- an interlingual respeaker or **transpeaker**, who respokes language A into written subtitles in language B. An editor may ideally be used here to correct the respeaker's subtitles.

Whether an interpreter + respeaker or an interlingual respeaker (transpeaker) is used, interlingual live subtitling can be produced with or without antenna delay. The former enables extra time to translate, correct and synchronise the subtitles, and will thus produce better quality for the viewers.

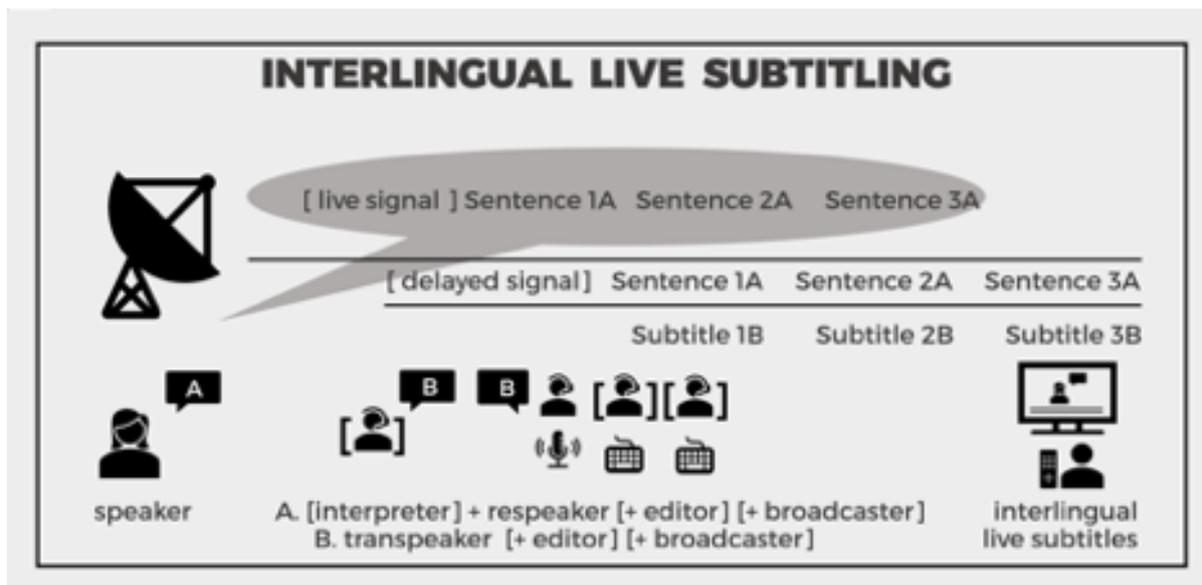


Figure 5. Model of interlingual live subtitling

As ILSA is primarily concerned with live subtitling through respeaking, we are not discussing here workflows involving automatic speech recognition or machine translation. Until now, such workflows have still not produced consistently satisfactory results.

LIVE CORRECTION

As speech recognition is normally not 100% accurate, the text produced through intralingual or interlingual respeaking needs to be corrected before it is displayed as live subtitles. Depending on the difficulty of the topic and the number of misrecognized words, correction can be done by the respeaker (self-correction) or by a live editor.

Self-correction can sometimes be used when programmes are slow-paced and there are not too many errors to correct, especially in languages such as English, where speech recognition works well and produces few misrecognized words. The respeaker can then stop respeaking, correct the error and start respeaking again.

Parallel correction allows the respeaker to focus on respeaking only, as the editor carries out the other tasks. This usually produces better quality subtitles in all types of programmes. Parallel correction is especially called for in fast-spoken programmes or programmes with complex terminology. Having a live corrector is also indispensable in languages where speech recognition is less developed or less accurate. This is the case, for instance, in highly inflected languages such as Polish, Russian or Turkish, which

have a large number of word forms. A larger overall vocabulary results in more room for misrecognitions, making correction more difficult and time-consuming.

When it comes to interlingual respeaking, the complexity of this task normally requires the use of parallel correction.

SUBTITLE DISPLAY SPEED AND DISPLAY MODE

For live subtitles to be useful, the viewers need to have enough time to read them. The subtitle display speed tends to be higher in live subtitling than in pre-recorded subtitling, and this is especially true in talk shows and political debates where people might speak very fast. We recommend that broadcasters should monitor and adjust subtitle display speed so as to avoid subtitles that are too fast for the viewers to read. This is a balancing act, which requires finding a compromise between the need to represent the information as accurately as possible and the need to shorten some of the text to give viewers more time to read the subtitles.

The ease with which viewers can process subtitles also depends on the display mode. Subtitles may be displayed in blocks of one, two and three lines or in the scrolling mode, where one word or a few words are displayed at a time. The scrolling mode is used in countries such as the UK, USA, Canada and Australia in an attempt to minimize subtitle latency. However, research has shown that scrolling subtitles cause the viewers to spend more time on the subtitles and less time on the images than block subtitles, as they are often compelled to read (or wait for) every word as it is being displayed on the screen (Romero-Fresco 2011). We recommend displaying subtitles as blocks of text.

SPEAKER IDENTIFICATION

Pre-recorded subtitling for deaf and hard-of-hearing viewers includes a number of features such as information about the tone or volume of the speaker's utterances, sound effects, music and character identification (which can be done by means of name tags, colours or positioning). Time constraints inherent in live subtitling make the introduction of such features far more challenging and usually the subtitlers have to prioritize the essential elements, with speaker identification perhaps being the most important feature.

Speaker change is usually identified in live subtitles through the use of colors (with each speaker having a different colour), chevrons (showing that a new speaker has started speaking) or name tags (ADAM: Thanks a lot. EVE: You're welcome.), although the latter may not be an option in contexts in which it is hard to find out who the speaker is.



Figure 6. Chevrons (left), colours (right) and name tags (middle) are some of the ways to help viewers identify speakers.

Live subtitling toolbox	
Speech recognition software	Live Subtitling Software
<ul style="list-style-type: none"> -Dragon Professional -Newton Dictate 	<ul style="list-style-type: none"> -FAB Subtitler (FAB) -WinCaps Q-Live (Screen) -Swift (Softel) -Subtitle NEXT (PBT EU)

Dragon and Newton are examples of desktop-based solutions where speech processing happens locally. This is at present more stable, faster and safer than using a cloud-based solution where speech processing happens remotely, in the cloud. Desktop-based software gives users control over the vocabulary so that they can add new terms.

Cloud-based speech recognition is offered by companies such as Alphabet (Google Speech API), Microsoft or Amazon but they do not guarantee that their service will be accessible 100% of the time and at the moment they do not allow users to introduce new vocabulary.

Hand-held microphones	Headset microphones
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <p>Olympus SpeechRec</p> <p>Phillips SpeechMike</p> <p>Nuance PowerMic</p> </div> <hr style="width: 30%; margin: 10px auto;"/> <p>Advantage: They are optimized for speech recognition</p>	<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <p>Sennheiser pc 320</p> <p>Sennheiser HMD 27</p> </div> <hr style="width: 30%; margin: 10px auto;"/> <p>Advantage: They allow the respeaker to operate the keyboard with both hands at the same time</p>
Hand-held microphones	
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <p>Sennheiser MD 431</p> <p>SpeechWare TableMike</p> </div> <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;"> <p>Advantages: They allow the respeaker to operate the keyboard with both hands at the same time (although the respeaker cannot move as freely as with a headset microphone). They are convenient as the respeaker can wear any headphones he or she finds comfortable and the headphones do not need to be connected through a USB port. Some table-mounted microphones are optimized for speech recognition.</p> </div>	

LIVE SUBTITLING SET-UP

Requirements:

- a sound-proof room with up to four workstations
- a video monitor showing the TV output
- two monitors per workstation
- sufficient air and light
- impeccable sound insulation and sound quality of all necessary equipment
- visual contact with the rest of the team (e.g. large windows) and possibility of signaling/calling for back-up or change of roles
- on air signalling: a red light outside the room that indicates if live respeaking is going on or not, so that visitors know they should be quiet
- a set-up that is ergonomically suited for long shifts, as sports broadcasts often last several hours (ergonomic chairs, desks with height regulation etc.)

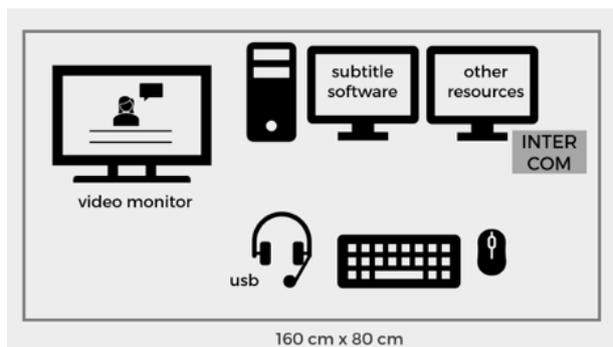


Figure 7. Example of a minimum set-up for live subtitling and a photo of subtitler at work at VRT (Belgium)

As shown in Figure 7, the subtitler needs at least three screens. The first one is a video monitor or TV screen showing the live TV signal with subtitles. This allows the subtitler to monitor if subtitles are being displayed on air. The second and the third screen need to be connected to a computer workstation. The second screen is used for the subtitling software (which shows the subtitles as they are being edited and cued in). The subtitling software usually displays the video and audio as received directly from the TV studio. The speech recognition software can either be integrated within the subtitling software or it can be displayed as a separate application on top of the subtitle software. The third screen is used to display the news systems, dictionaries, notes, a browser with a search engine or any other resources used for research purposes or as an aid to the process of creating live subtitles.

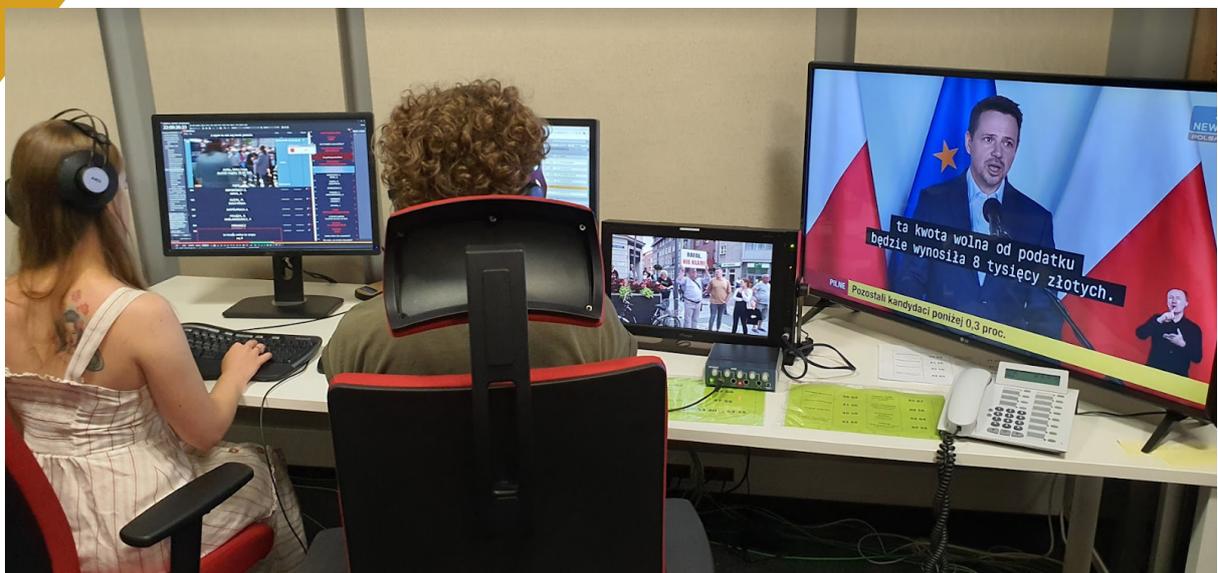


Figure 8 & 9. Live subtitlers working at Polsat NEWS (Polsat/Dostępni.eu, Poland) (©Dostępni.eu)

Figures 8 and 9 show an example of a set-up with small antenna delay and two subtitlers working side by side. The respeaker (on the right) gets the video and audio from the video monitor (a smaller screen in the middle, between the two computer screens and a larger TV screen). The respeaker works with the signal received directly from the studio and respesaks into a hand-held microphone. This means that the respeaker hears the audio before the corrector (on the left), who works in the subtitling software with delayed audio and video signal. The editor sees the text as dictated through respesaking before he or she hears the corresponding audio. The editor then spots the errors and corrects them. The errors might include misrecognitions (errors made by the speech

recognition system) or errors made by the respeaker. The editor also decides about the line breaks and the chunks of text that are sent as subtitles. Depending on the software and the internal practices, the editor might also change the colour of the text, which is sometimes used to identify different speakers, and the placement (for instance, moving the subtitles up to avoid covering some information on screen). If an incorrect subtitle is broadcast by accident, the corrector can quickly take it off air. Such a set-up with antenna delay minimizes the latency with which the subtitles are broadcast, improving their synchronization with the audio. The large TV screen on the right shows the live TV signal as broadcast to the viewers.



Figure 10. Live subtitlers working at VRT (Belgium)

Figure 10 shows a set-up with longer antenna delay and three subtitlers working together. The respeaker is standing (on the right) and respokes using a USB headset. The editor (sitting, in the middle) spots the errors and corrects them. Both the respeaker and the editor work with the same undelayed audio and video signal (usually coming directly from the studio or the field correspondent). The broadcaster (on the left) works with a delayed signal and decides when to air the subtitles.

For interlingual live subtitling, some broadcasters (for instance VTM News/DPG Media, Belgium) use a set-up with four subtitlers: a transpeaker, two correctors using antenna delay and a broadcaster who airs the subtitles. VTM adds a 1 or 2-minute antenna delay depending on the broadcast. The transpeaker and the first corrector usually listen to the same undelayed signal, although it's also possible for the first corrector to listen to a signal with a few seconds of delay so as to hear the original audio as the text appears from the transpeaker. The second corrector (who is also an interpreter, understands the original language and is able to correct mistranslations) listens to a signal with 30 to 45 seconds delay (depending on whether the overall antenna delay is 1 or 2 minutes). The broadcaster listens to the on-air signal (with 1 or 2 minutes delay). This workflow allows subtitlers to produce complete and accurate subtitles with no latency.

CHALLENGES AND SOLUTIONS

Challenge 1. Creating live subtitles takes some time and viewers find it difficult to follow a live show if subtitles appear with significant latency (that is much later than the corresponding audio).

Solution: Antenna delay should be added, so that the subtitles are always in sync, especially for fast-paced programs like press conferences or political debates.

Challenge 2. Due to time constraints, it is difficult to avoid errors in live subtitling.

Solution: Adding antenna delay allows the editor more time for spotting and correcting errors. For particularly challenging shows and for interlingual live subtitling, two editors can work alongside.

Challenge 3. Finding skilled live subtitlers is difficult.

Solution: Live subtitling providers are encouraged to cooperate with higher education institutions, complementing university courses in live subtitling with extensive in-house workshops and professional training programmes. Online courses such as the free course made available by the ILSA Project, can be of great help, too.

Challenge 4. Workflows are not coordinated between content producers and live subtitlers and it is difficult to make different systems and people talk to each other.

Solution: Enable effective communication channels between all involved departments or units. Keep information up to date in the TV systems and invest in compatible subtitling software and efficient IT solutions that help integrate information from various sources. Hold regular meetings to discuss what needs to be improved or assign a coordinator who helps various units work with each other.

Challenge 5. TV programming can change at the last minute, especially in the case of news channels.

Solution: Agree on protocols for what to do in the case of last-minute changes in the TV programming. Ensure that the team of subtitlers is ready to switch from semi-live to live subtitling if needed and there are enough subtitlers in each shift to handle such changes, respecting their need for having breaks.

Challenge 6. Making live TV subtitling available online is not straightforward.

Solution: Invest in new technological solutions that will allow you to add subtitles when streaming your live shows online. Make sure you use accessible video players that allow viewers to turn on subtitles when viewing TV online. If you are already providing live

subtitles in terrestrial or satellite broadcasting, it is a good practice to re-use them in online streaming so that as many viewers as possible can benefit from live subtitles. New EU regulations are likely to require broadcasters to make subtitles available for online content.

Challenge 7. Correcting and spotting the subtitles for a re-run is time-consuming.

Solution: When live shows are repeated and live subtitles are re-used for re-runs, the best practice is to correct them and improve synchronization. The process can be sped up with the use of additional editors. Technological innovation can help automatize parts of this process as most subtitling software will have features that allow to make at least some of the changes in an automatic way, saving time for editors to focus on other issues.

DOs and DON'Ts	
DOs	DON'Ts
<p>Add antenna delay for broadcasts with live subtitling.</p> <ul style="list-style-type: none"> • For the workflow where there is a separate operator (“broadcaster”) who cues subtitles, it is recommended to add a 2-minute antenna delay as this allows to have complete and accurate subtitles with no latency. This workflow is particularly recommended for interlingual subtitling. • For news broadcasting where longer antenna delay might not be possible, it is recommended to add a 10-second antenna delay. In such a workflow the editor corrects and also cues the subtitles. This allows for most errors to be corrected and subtitle latency can be minimized. Some content will be abbreviated as there might be no time to add content that the respeaker was unable to respeak. 	<p>Do not make respeakers work with the same signal that viewers receive. The process of live subtitling takes time and the resulting latency of subtitles, if not minimized in some way, can make it hard for viewers to follow the content. Using direct signal from the studio, or better still, adding antenna delay, can help minimize latency.</p>

DOs and DON'Ts (continued)

Prepare subtitles for pre-recorded or scripted content in advance, allowing subtitlers more time to work on them and resulting in a better quality.

Make sure subtitlers have good working conditions, including proper sound insulation, no distractions, good air conditioning and plenty of fresh air.

Ensure that subtitlers are able to take regular breaks. As respeaking generally requires high cognitive effort, it is difficult to sustain focused attention for longer than 20 to 30 minutes without a break. It is thus recommended to include breaks for respeakers or have a team of respeakers who can take turns.

If possible, change the position of individual subtitles (for instance, by moving a subtitle up one or two lines, or moving it to the top of the image) so as not to cover the speaker's mouth or relevant graphics.

If it is not possible to change the position of individual subtitles, adjust the default position of all the subtitles, taking into account the graphics and text used in the lower third of the screen by every TV channel. This is especially relevant in news programmes.

Display subtitles on a black box or with a black outline for better contrast and legibility.

Display subtitles as blocks rather than in scrolling mode.

Do not attempt to produce live subtitles for pre-recorded content where semi-live subtitles can be used.

Do not make subtitlers work in spaces where there is a lot of noise or other people can enter by accident and distract subtitlers.

Do not make subtitlers work longer with no breaks as this will have a serious impact on the quality of the subtitles.

Avoid situations where subtitles cover the speaker's mouth (as some viewers use lip reading to better understand what is being said) or on-screen graphics that include relevant information.

Do not display subtitles (especially white ones) without an outline or a black box as white letters will have poor legibility on white or light-colored backgrounds.

Do not display subtitles word by word as this causes viewers to spend a great deal of time on the subtitles and allows less time to look at the images.

CHECKLIST FOR RESPEAKERS

Preparation for a live broadcast:

- Start your software (SR software, subtitling software etc.) and check if everything works at least half an hour before going live.
- Create a list of important terms with synonyms and inflected word forms for this specific broadcast.
- If the broadcast tackles a topic with a recurring theme, name it accordingly so that your colleagues can use that list as well.
- Import the words to your SR software and check whether they are recognized properly.
- Prepare subtitles for the introduction and all other pre-scripted parts of the broadcast.
- Transmission: Make sure to check the right channels before you go on air.
- Adjust the volume.

During the broadcast:

- Be brief and concise. Try not to create an overlap of subtitles with the next part of the broadcast.
- Speak in a clear and steady voice.
- Dictate punctuation marks - it is much faster than to pause and type every comma or full-stop.
- Identify speaker changes.

Follow-up work:

- Practice the words where recognition was poor.
- Save your SR software profile.
- Save your subtitle file and post-edit it, if necessary. Compare it with the video recording to check whether the information was correct.
- Stay informed on current topics in order to waste less energy on comprehension and respeak faster.
- Practise respeaking regularly.
- Update your lexicon: replace spelling mistakes and add important terms.

CHECKLIST FOR THE BROADCASTER

- Decide if subtitles will be provided as open or closed. If you provide closed subtitles, decide if these will be DVB subtitles or teletext subtitles.
- Choose the language(s) of the live subtitles to be provided.
- Share the information about the introduction of the live subtitling service with your viewers.
- Include the information about live subtitling on your website, in EPG and in other printed or online TV guides. If only some of your programming is available with subtitles, it is a good practice to identify these shows graphically (for instance, adding an icon at the beginning of the show) so that viewers know that they can turn on subtitles.
- Provide a mechanism for quality assurance and feedback from users.
- Connect your news system with the subtitling software and make sure the systems are continuously updated as the shows are being prepared.
- Train newsroom staff so that they are aware of the need for accurate and good quality content in the news system.
- Set a suitable subtitle display time so that subtitles are not shown too fast for the viewers to read.
- Contact experts in TV subtitling and accessibility to help with the technical set-up and the training of your soon-to-be live subtitlers.
- Always verify that the subtitles are on air.

QUALITY IN LIVE SUBTITLING

Although there are different ways to assess the quality of live subtitles, the most common method used is the NER model (Romero-Fresco & Martínez, 2015), which makes a distinction between recognition errors (caused by the interaction between the respeaker and the software) and edition errors (caused by the respeaker's incorrect decisions when omitting or changing information). These errors can in turn be minor, standard or serious depending on how they impact on viewers' comprehension. The NER model is currently being used by governmental regulators, broadcasters and universities in countries such as Spain, the UK, Belgium, Poland, Switzerland, South Africa, Australia, the US and Canada, where it has been included within the national accessibility legislation to assess live subtitling quality. More information about the NER model can be found on the website of the Galician Observatory for Media Accessibility as well as in the ILSA course.

The NER model is used for the assessment of intralingual live subtitles (those produced in the same language as the original audio). The assessment of interlingual live subtitles (those translating the original audio into another language) may be done with the NTR model (Romero-Fresco & Pöchhacker, 2017).

MORE INFORMATION

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